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OF

THE NEW YORK ACADEMY OF MEDICINE

INCORPORATED 1851

OCTOBER, 1935

PUBLISHED MONTHLY BY

THE NEW YORK ACADEMY OF MEDICINE

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New York, N. Y.

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BULLETIN OF
THE NEW YORK
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VOL. 11 OCTOBER, 1935 No. 10

THE MEDICAL MAN AND THE WITCH TOWARDS THE CLOSE OF THE SIXTEENTH CENTURY*

GREGORY ZILBOORG
New York

1.

In the Bibliothèque Nationale in Paris there is preserved under number 24122 a small manuscript written piously in the year of our Lord, 1591. This manuscript is kept in a parchment folder of a later date and bears the following inscription: "The original of the minutes [procès verbal] of the Court held to deliver a girl who was possessed by an evil spirit in Louvier, in which one will find ample proof of a person being genuinely possessed by a demon."

This manuscript was published in its original form in 1883 by the *Progrès médical* under the direction of Armand Bénet, an authority on old French documents, and B. de Moray wrote a long introduction to it.

It was written by the not too literate hand of a sixteenth century scribe, Vauguet, under the direction and supervision of the provost of Louvier, Morel, the chief magistrate of this small town in Normandie. The first entry was made on Saturday, the seventeenth of August, 1591, and the last on the fifth of September of the same year. In other words, the trial of the young girl in her early twenties, whose name was Françoise Fontaine, took almost three

* Read before the Section of Historical and Cultural Medicine, January 9, 1935.

weeks and it required the constant cooperation and vigilance of the clergy, the attorney of the King, the Surgeon Baugeoys Gautier and the physician Roussel, not to mention various lieutenants, specially assigned archers, the whole population of the town, both Catholic and Protestant ["de la nouvelle prétendue réligion"] as well as the inmates of the town prison.

The story as one is able to cull it from the meticulous descriptions of the proceedings is to us neither new nor particularly striking. Françoise Fontaine was apparently seduced by someone whom she never knew while she lived in Paris and worked as a servant. Subsequently she developed convulsions, auditory hallucinations, optic hallucinations and ideas of reference. She believed herself to be possessed by the devil and while she did cooperate, as we would put it today, with her judges and priests, she was unable to "confess," nor was she able to overcome the domination of the devil. She would have convulsive attacks in the presence of the Court as well as in Church. She stood well the consecration of the Sacraments but at the very moment when the host was offered her and she was ready to accept it, the devil broke one of the window panes over the very altar and poor Françoise fell into one of her malignant, sinful swoons. She was not delivered until the hair from her head and arm pits had been shaven by the surgeon who, himself, was very frightened and thrice begged to be excused from performing the task and had to be threatened by the provost with severe punishment in the name of His Majesty, the King. Following the removal of the hair from her arm pits, Françoise appeared to have improved so much that the Court did not deem it necessary to insist on the removal of her pubic hair. She was then turned over to the care of Curé Houdemare and Chaplain Buisson and two special male guards. She remained in the Church for six weeks, receiving Holy Communion daily. Following this she was "paroled," as it were, to the custody of a good lady by the name of Marguérite Coquette. Although still tormented by the evil spirit, she felt better, and twenty months later the lady

custodian reported to the provost that Françoise was fully delivered from the devil. However, the conscientious official of His Majesty, much in the manner of a modern psychiatrist, kept a distant watch on her and also a follow-up record, as it were; he relates what her occupations were, he records the names of her employers in their chronological order, and so forth, until he finally was convinced that a good job was duly done. The concluding sentence of the record reads: "And after the said Françoise finally left these parts, a priest of the said town of Louvier told us that the above named Françoise had confessed to him that the said evil spirit called himself Barabas and that this was the name he gave as his to the above named Françoise; this she confessed to the above stated priest who came and duly informed us of the fact." The last installment of the report is signed by "L. Morel, Bellet, M. Pelet, Vauquet, Jehan Buysson, priest, and J. Vymont," i.e. the provost himself, the scribe, the priest and other attachés. There is no signature of a physician.

As has been said before, the story presents no striking features. It merely adds another case to a mass of hundreds of thousands, if not millions, of similar cases which were observed in those days, and which some Italian psychiatrists of the nineteenth century skilfully dubbed as hystero-demonopathies. However, the manuscript is interesting for its genuineness and for the local color it offers. Its homely, naively crude and not less naively frank narrative relates how the candles were blown out in the midst of the court session supposedly by the devil and how the assisting priest pulled out a dagger ready to attack the assaulting devil. It tells us how one night in the town prison Françoise developed a severe excitement, later threw herself head foremost into the well, was caught by some obstacle half way down and remained suspended. The poor magistrate of Louvier was much concerned and not less frightened. The peaceful inmates of the prison calmly left the prison and went to report to the provost; they appeared to have been the only ones who were not very frightened, and thus in the small hours of the morning the trembling

magistrate marched to the prison under the protective guard of his own prisoners who received a generous reward of wine and money for their good deed.

It would be idle, of course, to try to subject to modern scrutiny the symptoms of Françoise Fontaine in order to prove the obvious fact that she was a mentally sick girl. It is far more interesting to try to establish what the attitude of the medical man in such cases was and why his attitude was what it was. There exists somewhat of a tradition among the historians of the Middle Ages and the Renaissance, a very unscientific tradition, which disposes of the problem quite simply: It states that those were centuries of dark ignorance and of cruel domination by a superstitious church. A century that gave us scientists such as Tycho Brahe, Regio Montanus, Telesius, Erasmus, Melanchton, Vives, Cornelius Agrippa, Cardanus, Nicolas Cusanus, etc., could hardly be thought of as ignorant and the names mentioned did not belong to atheists but were borne by devoutly religious men both Catholic [Vives, Telesius] and Protestant [Melanchton.] On the other hand, one can hardly speak of the medical profession of the sixteenth century as one of ignorance as it was this century that gave us such anatomists as Vesalius, Fallopio [died in 1562], and Eustachius [died in 1574], and also Servetus, the discoverer of the pulmonary circulation [died in 1553]. The sixteenth century also gave us such clinicians as Girolamo Fracastorius [infectious disease and syphilis]; Jean Fernel; Felix Plater; Paracelsus; the father of modern surgery, Ambroise Paré; the great plastic surgeon from Bologna, Gaspare Tagliacozzo; and last but not least, Francis Bacon whose influence on medical thought must not be overlooked anymore than the searching and penetrating irony of Montaigne. This very brief list of names alone should convince us that the sixteenth century had quite thoroughly assimilated the knowledge of the Greco-Roman past, and proceeded with a great deal of searching curiosity to develop a serious scientific foundation for the future. It was therefore by no means ignorant nor was it lacking—considering its scientific resources—in that scepticism and

critical spirit without which scientific work is impossible. It did look for facts; it did try to master facts and it was slowly learning to respect facts. In one respect, however, it lagged behind, and it continued to lag for at least another three centuries, apparently unable to cast off the fetters of tradition: it was as yet unprepared even to begin to develop a sound medical psychology. As was pointed out with some detail elsewhere[1], there were many factors that interfered with clear vision, and it is both too vague and unsound to attribute to the tradition of the Church the cause of the general obscurantist attitude towards the problems of the human mind. That the Church was the chief bearer of the tradition that believed superstitiously in the devil, sorcerers, witches, and their satellites, there is no doubt; but there is also no less doubt that this tradition was rather borne by than inspired by the Church, who neither created it nor abolished it. We deal here apparently with a tradition that is deeply rooted in man's own psychology from the dawn of his life on earth, and we are not entirely free from it even today. While today we laugh at ourselves, so to speak, when we knock on wood, avoid a black cat on the road, dislike Friday, the thirteenth, etc., we do nevertheless still knock on wood, avoid a black cat, fear a broken mirror, and dislike being the thirteenth. Moreover, who knows how many of us, if only courage did not fail, would not openly follow the very learned Rev. Montague Summers. As recently as 1927 he openly subscribed to the principles outlined in the textbook of the Inquisition, "The Witch's Hammer," and he not only equates heresy and witchcraft, but actually still believes that witches and sorcerers were incontestable realities and that they were a well organized international unit bent on destroying civilization, a dark fraternity just as the Third International, the Anarchists, the Nihilists, and the Bolsheviks[2].

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1. Zilboorg, Gregory: The Dark Ages of Psychiatric History. *Journal of Nervous and Mental Disease,* Vol. 74, No. 5, November, 1931.

2. Summers, Rev. Montague: Introduction to his translation of the *Malleus Maleficarum,* John Rodker, London, 1928.

While, as we said, the sixteenth century was apparently as yet unprepared even to make a clear step in the direction of sound medical psychology, there was no dearth of clinical material. The medical literature of the nineteenth century collected a number of data and subjected them to such careful clinical scrutiny that no doubt is left in our mind that the millions of witches, sorcerers, possessed and obsessed, were an enormous mass of severe neurotics, psychotics, and considerably deteriorated organic deliria. In the two volumes of Calmeil[3] alone, one can find a valuable collection of such material and the comparative study of B. de Moray[4] would suffice as convincing illustrative material. At times one is almost loath to admit to one's self the indisputable fact that for many years the world looked like a veritable insane asylum without a mental hospital, or almost without one, or as Binz put it, it was a time when persecutory mania was endemic[5]. A word or two of an illustrative nature as to the wealth of the psychiatric clinical material: Boguet, a Judge in Burgundy in the days of Henry IV, made the following speech at the dedication of the Abbé d'Acey, a speech which was subsequently printed: "I believe that the sorcerers could form an army equal to that of Xerxes who had one million eight hundred thousand men. Trois-Echelles, one of those acquainted most with the craft of the sorcerers, states that under King Charles IX, France alone had three hundred thousand sorcerers [some read it as thirty thousand]. This being the case what should we estimate the total number to be if we include other countries and regions of the world? And are we not justified in believing that since those days the number has increased at least by half? As to myself, I have no doubts, since a mere glance at our neighbors will convince us that the land is infested with this unfortunate and damnable vermin. Germany cannot do anything else but raise fires against them; Switzerland is compelled to do likewise thus depopulating many of its

3. Calmeil, L-F.: *De la Folie.* Two vols. Paris, 1845.
4. de Moray, B.: Introduction to the manuscript referred to above. Paris, 1883.
5. Binz, C.: *Doctor Johann Weyer.* Berlin, Ed. 2, 1896.

villages; Lorraine reveals to a visitor thousands and thousands of poles to which the sorcerers are tied; and as to ourselves, who are not exempt from this trouble any more than others are, we are witnessing a number of executions in various parts of the land. Now to return to our neighbors, Savoie is not yet emptied since she sends us daily an infinite number of people who are possessed by devils, who when conjured up tell us that they were put into the bodies of those poor people by sorcerers. Adding to this the fact that the principal ones whom we have burned here in Burgundy came originally from there, what judgment could we form of France? It is difficult to believe that she will ever be purged, given the great number that she had in the days of Trois-Echelles, let alone other more outlying regions. No, no, the sorcerers reach everywhere by the thousands; they multiply on this earth like caterpillars in our gardens. . . . I want them to know that if the results would correspond with my wishes, the earth would be quickly purged because I wish they could all be united in one body so that they all could be burned on one fire[6]." This inflammatory but very sincere speech voiced a belief and a desire common to millions. This fiery and panicky state of the majority of people generated more and more evil spirits so that towards the latter part of the sixteenth century the enlightened Johann Weyer compiled from books and observations the total number of demons and evil spirits which he estimated to be seven million four hundred and five thousand nine hundred and twenty-six [7,405,926] who were commanded over by seventy-two [72] Princes of Darkness[7]. A possessed individual was not necessarily possessed by one single spirit; several and many could enter one human body. Thus it was reported that St. Fortunatus cured a man who was possessed by six thousand six hundred and seventy evil spirits[8]. Without going into any of the intricacies of the theoretical superstructure which supported the convictions

6. Quoted by Calmeil. Op. cit. Vol. 1, pp. 216-217.

7. The French reproduction of the 1579 edition of Weyer was used: Wier, Jean: *Histoire, disputes, et discours.* Two vols. Paris, 1885.

8. de Moray, B.: Loc. cit. LIX.

that we are dealing with, it can be stated that as a rule, if not always, the method used by the devil to enter the human body was that of sexual congress. This was a fact which a cardinal once stated one should be impudent to disbelieve: *idque negari non posse absque impudentia*[9].

What was the attitude of the learned men of the day who dared to doubt these fantastic assumptions? At first, particularly in the fifteenth century, they became interested in those things which were as distant from theology as possible, they treated these flagrant but unapproachable problems with the "eloquence of silence[10]." Speaking about Telesius a historian summarizes the method as follows: "Thus in man there are two kinds of spirits, two distinct agencies, not merely a soul united with matter, but material spirits and something of higher nature. The latter can be ignored while we consider the corporeal life of man and so drops out of all consideration. This was the standard method of avoiding the theological part of the doctrine of man[11]." This is the reason why Daremberg felt justified in saying that the fifteenth century was both active and sterile; it was both a summary and a preface. It was active because people were very busy unearthing, translating, reading, and studying the rediscovered ancient texts but they failed to do much thinking of their own; thus it was a summary of the past and a preface to the great advances made in the sixteenth century. It was not until the end of the sixteenth century, however, that the actual text of scientific doubt, to which the previous century was a preface, began to be written. The cautious silence of Telesius stands out in striking contrast with Montaigne's incisive laughter: "Through presumptions they make laws for nature and marvel at the way nature ignores those laws." In this connection Rabelais cannot, of course, be forgotten.

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9. *Multis experimentis compertum est, interdum mulieribus improbes esse demones, earumque concubitum expetere et peragere, idque negari non posse absque impudentia.* de Moray. Loc. cit. LXIX.
10. The expression is Brett's. Cf. Brett, George: *History of Psychology.* Vol. I., p. 160. London, 1921.
11. Ibid. p. 146.

In the meantime the whole field of clinical psychiatry was covered by theologians and their psychiatric practice seemed to emanate almost exclusively from the twenty-seventh verse of the twentieth chapter of Leviticus which reads: "A man, also a woman, that has a familiar spirit or that is a wizard shall surely be put to death; they shall stone them with stones; their blood shall be upon them."

2.

If we return now to the story of Françoise Fontaine, we shall find that even a cursory perusal of the text will impress us with the earnestness and honesty of those who were in charge of the trial. They were at times frightened, at times angered, but on the whole they treated Françoise with consideration, and they were eager to give her the full benefit of the doubt. We thus find that "Because we heard it said that in order to prevent a sorcerer from doing evil, it was necessary to obtain a new broom made of birch-wood and to beat with it the said sorcerer, and fearing lest the above said Françoise be a sorceress, since we saw what she was doing was something supernatural and beyond human ken, we demanded that a new broom be produced and this was brought to us from the jail; we beat the said Françoise with this broom and hit her on the body several times doing which, however, we used up the broom before the said Françoise came to[12]." The girl failed to recover from this procedure. We may add parenthetically that the contemporary theory of stupors was that stupors and stupor-like states were due to the fact that a dumb or deaf and dumb evil spirit had entered the person. A stuporous state would not even exempt one from the accusation that the afflicted one attended the witch's Sabbath in spirit while her body lay as if dead in bed. However it may be, Françoise was brought to for a few minutes; she was able to make five or six steps to enter the courtroom. At that moment the doctor and the surgeon, named Roussel and Gautier respectively, made their entry and they were informed of what happened heretofore. All this occurred on August 31, 1591, i.e. four-

12. *Procès Verbal*, etc., pp. 28-29.

teen days after the opening of the trial. As we see, a medical opinion was not considered a very urgent matter although it was not cast off as unnecessary altogether. In the meantime Françoise fell to the floor; she had another or reentered her first spell. The doctor and the surgeon "saw that the neck of the said Françoise was quite swollen and she threw herself here and there; they were as astonished as we were and the said Roussel [the physician] stated that he was in possession of the root of a certain herb the name of which he gave us but which we have forgotten, and he said that if he put it in the mouth of the said Françoise he would be able to say whether it was a sickness or an evil spirit that possessed her. We at once dragged the body of the said Françoise, she remaining on her back, along the said courtroom—which procedure was observed by the said Roussel, the doctor, who according to his own statement belonged to the new alleged religion; he then stated that the said Françoise was possessed by an evil spirit and that it was beyond his power to prescribe anything for her." Françoise, in the meantime, continued to "lie on the floor face upward, arms extended like a cross, squirming in all directions[13]."

From this moment on the procedure turned into the direction of traditional exorcisms and other authorized ecclesiastic methods of casting out the devil. One might be inclined to consider as atypical the behavior of the small town physician, Roussel, and wonder what the views of those of his colleagues were who had the benefit of large cities and great centers of learning, but this assumption cannot be entirely borne out by facts. All traditions die hard and the medical tradition of keeping away from the devil's tricks died perhaps the hardest. Even the anatomical discoveries of Vesalius which could be so easily demonstrated on the cadaver did not at first appear convincing to his contemporaries. They were more ready to assume that the discrepancies between Galen and Vesalius were due to the fact that humanity had degenerated since the days of Galen,

13. Ibid. p. 30.

than to admit that the great physician of Pergamos was wrong. As a matter of fact, the teacher of Vesalius himself, Jacques Dubois, thought that Vesalius was "crazy"[14]. Moreover, authoritative public opinion could not help but exert its pressure on the medical profession in a manner both effective and deadening.

We must not forget that even the enlightened humanist Melanchton sent a congratulatory letter to Calvin soon after learning that Servetus had been duly burned at the stake. The medical profession on the whole was unable until the very end of the century even to surmise that some day it might want to have, and even be called upon to do something with, the host of alleged possessed, sorcerers, demonomaniacs, etc. We may well omit the consideration of the great lay authorities on the devil and his deviltries. Such keen and ingenious minds as Jean Bodin, for instance, devoted their lifetime to the study of what Montaigne called "presumptions through which they made laws of nature." They were great legal and theological authorities whose task and historical function it was, through the very nature of their task, to preserve and not to let go, to codify and not to rescind, to justify the belief rather than to test it. As to the medical clinician, while he began to look askance at the phenomenon of demonomania, he at first did not even dare to wonder. Thus John Lange [1485-1565], one of the most distinguished physicians of his day states in his *Medicinalium epistolarum miscelanea* published in 1554[15]: "Ulrich Neussesser, a peasant in Tugenstal, killed himself in 1539 with a sharp tool. A few days before his death an enormous nail was extracted from Ulrich's abdomen by means of an incision into the skin where it was protruding. Those who performed an autopsy following the felony [suicide], removed from the stomach an enormous piece of wood, four knives, two pieces of iron, and a bunch of hair. All these objects, they stated, had been deposited there by some diabolical trick." Lange did not hesitate to cite this as

14. Diepgen, Paul: *Geschichte der Medizin.* Vol. III. p. 14.
15. Quoted from Calmeil. Op. cit. Vol. I, p. 174.

an illustration confirming the existence of supernatural diseases; he also quotes the example of a woman who vomited out two iron nails, two needles, and a bunch of hair[16].

Lange was not an exception, of course. Ambroise Paré, the younger contemporary of Lange, specifically stated in his medical writings that the devil can assume any guise he pleases from serpent to raven, cat or dog; he could turn over pages in the dark, count money, throw things about the room at night, etc. Once when attending Court be observed Charles IX laugh heartily at the tricks shown by a magician. The illustrious surgeon bent over and whispered into His Majesty's ear: "Thou shalt not suffer a witch to live." In his clinical observations, Paré apparently considered the work of the devil one of the points to be considered when a differential diagnostic problem would come up. He thus reported the following: "A young nobleman would have convulsions from time to time which would involve now and then different parts of his body such as the left arm, or the right, or on occasion only a single finger, one loin or both, or his spine, and then his whole body would become suddenly so convulsed and disturbed that four servants would have difficulty keeping him in bed. His brain, however, was in no way agitated or tormented, his speech was free, his mind was not confused and his sensations, particularly those of the convulsions, remained intact. He was tortured by these convulsions at least twice a day and would come out of them all tired out and broken for they caused him a great deal of torment. Any well-advised physician would have said that we were dealing with a case of genuine epilepsy, were it not for the fact that his senses and his mind remained unaffected throughout the attacks. All

16. The veracity and oddity of what might be called "pathological swallowers" was not confined to the sixteenth century; there is a collection of very striking radiographs at Bloomingdale Hospital which discloses the swallowing propensities of some patients with depression and schizophrenia who even for a long time before they reach the hospital successfully practiced the incorporation of numberless hairpins, teaspoons, thermometers, etc. However, while this symptom still persists in the twentieth century, demonomania, like chlorosis or sweating sickness, has all but disappeared.

the good physicians who were consulted came to the conclusion that we were dealing here with a convulsion which was the nearest approach to that of epilepsy and that these convulsions must have been provoked by a malignant vapor lodged within the spinal cord from which the said vapor expanded into the nerves that originate within the spinal cord only and thus failed to affect the brain itself. The cause of the malady was thus established by this judgment and no measure that the art had at its disposal was forgotten in order to relieve the poor patient of his trouble; yet all our efforts remained of no avail since we were miles and miles away from the real cause of the trouble.

"For, at the end of the third month it was discovered that it was the devil who was the cause of the malady. This was learned through a statement made by the devil himself, speaking through the lips of the patient in profuse Latin and Greek. The devil would always discover the secret intentions of those who attended to the patient's needs and particularly the plans of the physicians. He stated with mockery that despite the great dangers to his own safety he succeeded in circumventing all medical procedures. With the physicians thus rendered useless, the patient had almost died. Each time and always, whenever the father of the patient would come to visit him, the devil would become impatient as soon as he saw him at a distance and would shout: 'Make him go back; don't let him come in,' or 'Take the chain off his collar.' The father of the patient was a noble knight and in accordance with the customs of French Knights he wore a collar of his order from which a chain was dangling with the image of Saint Michael. The patient would become restless whenever one attempted to read something from the Holy Scriptures to him. He would try to get up and thus would be even more tormented. The paroxyms over, the poor, sick man would recall everything he had done or said and he would repent, saying that he had said and done all these things against his own will.

"This devil, forced to talk frankly by means of religious services and exorcisms, stated that he was a spirit and he was not at all to be damned for any forfeit whatsover. He

was then interrogated as to what kind of a spirit he was and by what means and by virtue of what authority he tormented the young nobleman, and he replied that he had many residences where he hid himself and that during the time when he let our patient rest for a while, he would move about tormenting other people. He also stated that he was relegated to the body of our patient by some one whose name he did not want to give, that he entered it through the patient's feet and went up to the level of the brain and that he would leave the patient also through the latter's feet, but not until the day set by previous agreement had arrived. Following the custom of other servants of the devil, he talked about many other things. I want to assure you that I am not reporting all this merely to play it up as something new, but in order to make people recognize that the devil does enter at times into our bodies and tortures us with unheard of torments. Occasionally he does not enter the body at all, but just agitates the good humors within us, or sends bad humors into the different parts of our bodies[17]."

Nor was Jean Fernel [1497-1558], one of the greatest clinicians of his time, free from the same bias. Fernel was a scientist and clinician of the first order and in his spare time he amused himself by calculating the size of the earth, but he followed tradition and despite the clinical evidence to the contrary, he believed in the existence of lycanthropy [werewolves] as a separate clinical entity. This "disease" was described by the later representatives of Greco-Roman medicine, particularly Celsus and Paulus Aeginatus, and in the sixteenth century books frequently exercised a greater influence on the mind of the practicing physician than clinical facts. This was the reason why Daremberg stated at the risk of provoking great astonishment that he found the medical history of the sixteenth century less attractive than that of the fifteenth. "The history of the sixteenth century," says Daremberg, "could be reduced to the following three points: the humanists busy discussing texts; anatomists scrutinizing nature; and Paracelsus

17. Paré, Ambroise: *Oeuvres*. Lyons, 1633. Quoted by Calmeil. Op. cit. pp. 176-178.

dreaming at high noon and raving delirious while in full possession of his senses[18]."

Before we give any details of Paracelsus' "dreams" and "deliria," we might state that the medical man of the sixteenth century, imbued as he was with the physiology of the re-discovered Greco-Roman science, could not help but remain the child of his age. Here and there physicians, great authorities on ancient medicine [Montanus, Schenk, Houllier], did describe clinical conditions similar to those of diabolic possession and did consider them physical, particularly cerebral affections, but in this they appeared more to follow the noble literary tradition of the Hippocratico-Galenic theory than to raise an effective protest against the prevailing practices. The devil and the witch as his chief servant on earth remained an entity apart from medicine and medicine openly and passively accepted the current attitude. For a long time medicine failed either to register a serious protest or to undertake a dispassionate scientific study of the phenomenon of demonolatry. That the witch was a witch no one doubted, but occasionally one heard a reference to what we might call today the physical or constitutional predisposition to being possessed by the devil; the concept being that the devil needs some weak organ in the human body in order to settle there. This, of course, was not a revolutionary idea, nor was it even new since St. Jerome, who died at the beginning of the fifth century [420], had already represented this point of view when he said that the black bile [atrabile] was the favorite liquid in which the devil loved to bathe. Moreover, as can be noticed from the case cited by Ambroise Paré and from the writings of Fernel and Plater [1536-1614], the devil was apparently free to choose the point of entry and the organ to reside in without the prerequisite of anatomical or physiological pathology. So deeply rooted was the concept of the witch in the mind of the clinician that the closest and most conscientious observations and studies would not arouse him to the temerity of subjecting witchcraft to scientific doubt

18. Daremberg, Charles: *Histoire des Sciences Médicales.* Paris, 1870. Vol. I, p. 355.

and the witch to clinical investigation. Thus Plater, a very conscientious and industrious doctor, had two hobbies: he collected musical instruments and kept company with the maniacs, frenetics and idiots of the town. He would not only visit the dungeons where the "insane" were kept, but actually lived with them for a time sharing their filth and misery. He was one of the first, if not the first in modern times, to attempt a scientific psychiatric nosology, and yet he came out of these strenuous and serious studies a firm believer in the devil as the causative agent of many mental conditions which we would classify today as psychoses.

It is for the future historical sociologist to find a definite scientific answer to the question as to what were the various forces that made the concept of the witch such a tenaciously cruel and almost ineradicable concept in medicine. This communication is concerned only with registering the facts that marked the evolution which medical thought underwent in the course of the sixteenth century. From what has been said thus far, one would be justified in concluding that almost up to the very close of the century medicine either shied off and away from the problem or joined hands with public opinion and the jurist in the principle of "Thou shalt not suffer a witch to live," or by way of ineffective compromise followed St. Jerome's views, thus preserving both the current increasingly scientific anatomy and physiology and the current faithful and persistent belief in witchcraft. No one seemed ready as yet to recall Canon Timothy's advice which was that if a wife be disturbed by an evil spirit, send her back to her husband and let him take her to a doctor who will treat her for her craze[19].

3.

We may now return to the "delirium" of Paracelsus. The bombastic Theophrastus was a strange man and a rather disturbed and highly hectic mind, violent of word and at times disconcerting in behavior—but as violently and as disconcertingly sincere even at the height of his conceit— the real medical Don Quixote of his age. Were

19. de Moray, B.: Op. cit.

his clinical, scientific ability equal to his uncanny clinical intuition, he would have undoubtedly been the first to disturb the stagnancy of medical psychology rather early during the Renaissance. Unfortunately his greatest endowments in this field were temperament [of Paracelsus it is more correct to say temper] and intuition. His interest in mental diseases showed itself very early: he wrote his *De Morbis Amentium* in 1525 or 1526 [according to Sudhoff], i.e. when he was only thirty-one years old, although it was not published until almost forty years later, after his death[20]. Possessions, exclaimed Paracelsus, while they are not physical diseases, are a definite type of pathological accident. Mental diseases have nothing to do with evil spirits or devils; the individuals who are mentally sick merely drank more of the "astral wine" than they can assimilate; the experienced [doctor] should not study how to exorcise the devil, but rather how to cure the insane. Some mentally sick are animals with sane minds and some are insane animals. "The insane and the sick," Paracelsus exclaims, "are our brothers; let us treat them to cure them for nobody knows whom among our friends or relatives, this misfortune may strike." In other words, Paracelsus was violently outspoken against the views of his contemporaries and preached a new psychiatry. He belonged to what Daremberg called "the turbulent minority who did not respect the Greeks any more than the Arabs." Daremberg states: "I should gladly call the chief of this faction [Paracelsus] the Luther of Medicine, if he had succeeded in something more than in augmenting the ruins of the past, i.e. if he had succeeded in founding something durable and if he himself had not said that Luther was not worthy even of unlacing his shoes[21]."

Like Luther, Paracelsus did not lack in explosiveness and tempestuousness of ideas, but like him he did lack in sufficient detachment and was not infrequently moved to be

20. The Basel German original was used for this study. It is entitled *Medici Aureoli Theophrasti Paracelsi Schreiben von den Krankheyten so die Vernunft berauben,* etc. Basilee, 1567.

21. Daremberg, Charles. Op. cit. pp. 325-326.

rather cruel. He had no use for those mentally sick who would not easily respond to his treatment. They were to him but hopeless animals and he recommended that they be thrown into the darkness of dungeons for the rest of their days. Following his weird physico-chemical theories, he recommended that the bodies of the mentally sick be scarified, especially the tips of their fingers and toes, to form an outlet for the pathogenic fluids and vapors. In other words, the emotions and the theoretical concepts of Paracelsus were revolutionary and rebellious, but he lacked in disciplined thinking and hence he had no scientific method. *Mutatis mutandis,* the same might be said of Rabelais and Montaigne who, each in his own way, gave vent to their rebellious sarcasm and sardonic dissatisfaction with tradition, but who naturally were unable to test scientifically the illusions of the age which they were combatting so persistently. The real scientific battle did not begin until the last quarter of the century, and it was not won for a long time.

4.

Non-medical thought was able to fight only in the manner of Rabelais and Montaigne, i.e. with derision; more aggressive methods would have naturally led to the scaffold or the pyre. On the other hand liberal thought, humanistic and humanitarian though it was, was bookish, so to speak; though it was keen and penetrating, it could not be effective enough, for books and treatises could not be very strong mediums only a century after the discovery of the printing press. Moreover, while Europe was literally studded with pyres and scaffolds, a plain and dispassionate statement of fact was not exactly the most efficient weapon to use. That was probably why such clear thinking men as Juan Luis Vives or Levinus Lemnius left but little imprint on their generation, no matter how important their writings might be to the historian of European thought.

Vives was interested in things human and he made a very serious attempt to reorganize the care of the mentally sick in his native city, Valencia. In his intelligent concern about the psychological problems of man, he appears to have been

in more than one respect a great deal ahead of his time. He was considered by many the founder of feminine education and he became known in the history of the Renaissance primarily as an educator; yet he is hardly remembered as a psychologist, and still less mentioned as such despite the fact that in the third book of his *De Anima et Vita,* entitled *De Affectibus,* he deals apparently for the first time with human affects and he does so with unusual keenness and in a manner almost completely modern.

As to Levinus Lemnius, "he recognized that although energumens do improvise and use unknown languages, and although they do at times appear to know temporarily a tongue which they had never been taught, they possess this faculty while in a state of ecstasy that is attributable to vehement cerebral stimulation: the humors viciated by the malady exercise as strong an influence on the brain as strong wine would, or they act in the same manner as a blow which arouses sparks from a flint stone, or as a fever that arouses certain forces usually not present in the organs of our body. Spirits and demons don't have any part in the production of the phenomena mentioned and therapeutic measures remove them at times quite promptly. Epilepsy at one time was also attributed to the activity of malefcient spirits, but it is not considered any more a supernatural affection. It is in the brain and in the humors that one should look for the cause of those attacks which betray the presence of the falling disease[22]."

It is quite evident from the above that in their attempt to destroy the superstitious scaffolding of the age, the essayist, the philosopher, and the physician had but little more new and convincing evidence to offer than the old writings of the Greeks; hence the argument appears to us both anachronistic and somewhat anemic no matter how correct it was, for in matters psychological the learned man of the sixteenth century had little more to fall back on than the original Hippocratic humoral theory and his views on the Sacred Disease which were expressed two thousand years

22. Calmeil. Op. cit. Vol. I, p. 189.

previously. The medical man struggled against his own deficiency; towards the close of the century he accumulated enough clinical observations to perceive a serious doubt in his mind and he was no more able to remain so glib and so garrulous on the matter as Ambroise Paré was twenty-five years before, yet he could do nothing but grope for some explanation within the limits of a truly primitive physiology and only an embryonal psychology. Nicolas Lepois can serve as a perfect illustration of this rationalistic groping. Not as great a man as his older brother whose place he took as the personal physician of Prince Charles of Lorraine, he was a great student and in 1580, the year when Montaigne first published his essays, he published a treatise on internal medicine which survived almost two hundred years, one edition—that of 1766—appearing with an introduction by Boerhaave. The problem that stood before psychological medicine which was represented by men like Lange or Paré was how to differentiate between *natural* [i.e. organic] and *supernatural* [i.e. demoniacal] affliction. As will be remembered, they saw little difficulty in the problem: if the patient would not react to a certain herb, or if he or she would suddenly begin to talk an ancient tongue, or if he or she would state themselves that they acted against their own will, or if they described their hallucinatory experiences—their affliction was not *natural.* The trend represented by Lepois was to prove by quotations or speculation that the whole field of demonopathies could be explained on the basis of *natural,* i.e. physical causes. To a large majority of the people the mentally sick person was still guilty by virtue of his sickness and it was not so much necessary for any one to prove his guilt, as for the patient to prove his innocence. This was obviously a very difficult problem. Lepois did not think that physicians could justify the belief in demonolatry. While he conceded that there existed a state of mind which might be called the delirium of inspiration that was caused, according to Plato, by the breath of Apollo and was operative in prophets, sibyls, etc., one should not in one's medical practice attribute mental

disease to the influence of spirits[23]. Lepois then proceeds to describe various observations on transient, acute, and permanent states of loss of memory and attributes them all to cerebral pathology. However, he has nothing to offer in scientific corroboration of his views except sound clinical observation and great medical literary erudition. He states, therefore, that the brain may be affected directly or "by sympathy," i.e. he reiterates the old Galenic theory. He could do no more, for medicine was still awaiting the coming of Harvey, Haller, Willis, Bichat, etc.

5.

As can be easily seen from the above, the last quarter of the sixteenth century was marked by an increasingly restless doubt creeping into medical thought. It is clear that man and his humanness, the chief object of interest to the Renaissance, presented to the medical man a psychological problem which was most puzzling, most intricate and most dangerous. In this respect the sixteenth century appears to be sharply defined from its beginning to its end. It was in 1501, in the first year of the century, that Magnus Hundt published his *Nature of Man,* coining a new word *Anthropologia,* and it was toward the very close of the century that the restlessness of medical thought, preoccupied with human problems, became most marked. Thus some medical men had radically changed their whole manner of thinking within a very short span of time. Cornelius Agrippa [1486-1535] was a good case in point: he started with a mystical, astrological, and alchemical trend characteristic of the age, and gained a comparatively shady reputation of a magician or even a wizard who was well versed in this field of "sciences," as it was then called. However, towards the end of his career he published a book in which, beginning with the title itself and throughout the text, we find an unequivocal denunciation of all the occult sciences of his day and a frank declaration that they all are uncertain and vain[24]. Agrippa was interested in mental diseases and he

23. Calmeil. Op. cit. Vol. I. pp. 211-212.

24. Henrici Cornelii Agrippae: *De incertitudine et vanitate scientiarum declamatio invectiva.* Paris. [probably 1525].

openly fought the courts for their witch hunting. Needless to say, he was looked upon as a suspicious and rather tricky character and everything about him, even his French poodle dog, was considered suspicious; as a matter of fact, they thought that the dog whose name was *Monsieur* was the devil himself, or one of his deputies, under whose guidance Agrippa lived and worked; that is why Agrippa called him politely *Monsieur*. Nor did the man escape the suspicions of his more enlightened contemporaries. We find him depicted in the manner of highly destructive caricature in Rabelais' *Pantagruel* under the name of La Trippa. Whatever may be said against Agrippa, he was a valiant man and one of the real pioneers in combatting the universal psychosis of demonological philosophy, and even if he had none of these things to his credit, his name should be gratefully preserved in the history of medicine as that of the teacher of Johann Weyer, for Weyer's is the greatest contribution to the practice of psychological medicine of the Renaissance. Weyer [Wierus, Wier] was the first to set out to investigate independently before he argued and to observe and to prove rather than to limit himself to a traditional bookish protest. He was a singular and quite fortunate combination of keen irony, such as only a Rabelais or Montaigne could boast of, with a scientific steadiness and persistent studiousness which had not been equalled by any of his medical contemporaries or predecessors. From the very outset Weyer proceeded to look upon the demoniacal world around him as an enormous clinic teaming with sick people, and he set himself to make careful clinical studies while spending his spare time in going over the whole literature on the subject and subjecting it to a critical analysis. He also traveled extensively and obtained first hand knowledge of oriental magic in Fez and Tunis. The result of it was, first of all, the conviction and the statement thereof that the "encowled," i.e. the monks, should have nothing to do with the management of the sorcerers and witches; and second, that these witches were sick people and therefore they should be treated by physicians. He is frank and open; he is also very pious and at no time does he give any sign of being an unbeliever. Despite his critical and at times quite

sarcastic attitude, he never even tends to sacrilege; he merely states that it would be wiser to let six guilty individuals go free than to put one innocent person to death, and he thinks that the monks would do better if they studied the art of healing instead of specializing in the art of killing. He quotes a series of bishops who were opposed to the practices of the Inquisition and declares himself opposed to the "incendiary bishops." "If we could put to better use the wood and piles of fagots which are now used to burn innocent people, our expenses would be considerably diminished." Weyer also states that he is one of those who "does not like to see how in order to destroy errors, people destroy human beings." However, he does not try to combat tradition with mere liberal beliefs which he would set up against current beliefs; instead he goes out of his way to test impartially every statement and every step of tradition. He even goes so far as not to deny the existence of the devil; he denies nothing but tests everything. Thus he sets himself to the laborious task of computing the actual number of devils. He makes a careful study of the suppression of menses, of persistent hymen and pseudocyesis, and thus makes a notable contribution to gynecology while depriving the witch hunter of some of his pseudo-anatomical and pseudo-physiological props. He studies the contemporary and ancient Latin, Greek, and Hebrew texts to verify the traditional references quoted by the masters of the witch-hunting epidemic. He tries to undermine the customary interpretation of the word sorcery in the Bible, and points out that the Hebrew word Kha-saph means not wizardry and magic of a supernatural type, but the art of mixing various injurious substances—poisons. He devotes himself to the study of the various magic salves that witches were purported to use to prove that it is not the devil but the chemical substance that produces at times the delirious ideas, hallucinations of hearing, sight, and touch. We find Weyer studying for this purpose the pharmacological action of atropin [belladonna] and also cannabis indica, which appears in his writings under the oriental name *hieran-luc*. Weyer tries to explain the subjective delusions of being transported through the air to the

witch's Sabbath by the influence of this drug. He does the same with reference to other drugs to explain the various anesthesias and abnormal motor reactions. Like the real scientist, he is ready to experiment on himself by tasting chicken soup which was supposed to contain some drug[25]. In other words, Weyer refuses to accept the supernatural as the causative agent of mental disease and seeks it everywhere objectively. He finally, if not primarily, studies actual cases; thus he quotes an Italian who always before attending the witch's Sabbath would treat himself the evening before with some medicamentous suppository. "It is a devilish phantasy," he exclaims, "to believe that the witches could by their ceremonies kill off new born babies; it is also a phantasy that the witches unearth the babies who were killed by the above means and through cooking them prepare a special salve. All this is so terrifying that if I myself were eye-witness to such a thing, I would have to say that my imagination deluded me. Yet let us assume that all this is true; then the question arises, wherefrom does such a salve obtain its powerful properties to lift an individual into the air if he himself is smeared with this salve, or even the chair on which he happens to be sitting is smeared with it. And yet the 'Witch's Hammer' tells us about it." It is also a phantasy to believe that the devil can introduce a foreign body into our stomachs or any other organ. He studies this problem carefully and devotes the whole fourth book of the first volume of his *Histoire et disputes* to this question. His procedure differs from that of Lange. He relates how he himself observed a sixteen-year-old girl from whose mouth he extracted a heavy kerchief and a few other objects. Her father stated that she would frequently vomit up such objects which he was certain the devil introduced into her stomach. Weyer uses palpation of the abdomen to prove that one cannot get any tactile perception of a foreign object in the girl's stomach. He examines the kerchief and points out the absence of chylus or remnants of other food which would be present on the object had it come from the stomach, since the girl

25. Binz. Op. cit. p. 41.

had had her regular meal only a short while before. He then goes carefully into her history and traces the girl's trouble to a stomach ache which she tried to cure by drinking some sort of water she bought as Holy Water. The girl was supposed to feel better when a sign of the cross was made over her. Weyer remarks that he is not at all disrespectful of the Cross, but merely mentions the fact to show how misused it is at times and he concludes: "These are the consequences a person has to suffer from when one turns away from the natural remedies given to us by the Lord and through Him created by man, and when one turns to things which only nourish the unjustified insanity of witchcraft."

On another occasion Weyer cites another interesting personal observation of a small epidemic of demoniacal possession among the Augustinian nuns in Cologne in the Cloisters of Nazareth in 1564. They suffered from convulsions during which Weyer could not overlook the erotic nature of their motor reactions: "*praeter aliud spectaculum horribili modo frequenter editum, prosternabantur saepenumero deorsum, infima corporis parte succussata ad eum modum qui Veneri solet ascribi, oculis interim clausis. Qui postea cum pudore aperiebantur, quum velut a multo labore respirarent*[26]." An epidemic of typhoid fever put a temporary stop to the demoniacal outbreak, which recurred after the fever had passed. On the 25th of May, 1565, Weyer examined the cloister and the nuns and conducted an investigation. In this he was assisted by the Burgomaster, Dean Johannes Altena, a Dr. Echt, and Weyer's son, Heinrich, who himself was a doctor of philosophy and medicine. They traced the beginning of this epidemic to the misbehavior of some young nuns with a couple of young men from the neighborhood. In his written opinion Weyer wrote: "My faithful opinion is that all the nuns should be separated from each other. They should be turned over to their devout and God-fearing parents or nearest relatives, who will gladly take them with the Lord's assistance and be

26. Quoted by Binz. Op. cit.

of help to them so that their disturbed feelings under the pressure of fear and horror should not become still more disturbed, etc." As to the theory of sexual congress with the devil, Weyer subjects it to a ruthless anatomico-physiological analysis and derisively proves how untenable the assumption is. He concludes that the so-called witches imagine things that are not true. They tell untruths without knowing it and believe the untruths they tell. The experiences which they describe as actual happenings during their attacks are imaginary. In fact, the witch has never done a thing that would justify her sad fate at the hands of authorities. Time and again Weyer tries to convince the world around him that a physician should be called in in every case of demoniacal possession.

We might add, paraphrasing St. Augustine who said that in describing the attributes of God man tries to describe his own qualities, and say that in describing the attributes of Satan man described his own sinful propensities. Weyer dubbed Satan quite sarcastically *Milleartifex.*

Weyer's views were met with a great animosity. In addition fate was quite unkind to him: he was the personal physician of the Duke William von Jülich-Cleve-Berg and enjoyed his protective influence. However, the Duke himself and his son developed what appears to have been acute psychoses, and an outbreak of prosecutions of witches followed and Weyer had to flee. Jean Bodin, the cruel and talented legal authority of the day, was Weyer's most learned and violent opponent, but the seeds sown by Weyer bore fruit. In the course of the century and a half that followed Johann Weyer's writings, although they were put on the *Index Librorum Prohibitorum,* they became known all over Europe, even in Spain and also in England where Reginald Scot, following Weyer, wrote his *Discoverie of Witchcraft,* incurring thereby the wrath of King James. His Majesty caused the book to be destroyed, and in reply to it wrote his *Demonologie.* The influence of Weyer on psychological medicine should not be underestimated, particularly because he was the first to introduce the observational and the experimental method in the study of the mass

psychoses of his day, and because he studied the human being as a human being and not as a body bearing a mystical entity of demoniacal susceptibility. To him pathological behavior of man was determined by exogenous and endogenous causes, and not by the free and malicious will of the sinner that man was supposed inherently to be. In short, Weyer's task was (1) to introduce the scientific method to psychopathology and (2) to reclaim the whole field of mental pathology for medicine. As has been said, the sixteenth century did not succeed in seeing Weyer's ideas victorious, but one could sense occasionally towards the very close of the century that demonology was being captured gradually by medicine. Thus de Thou, the President of the Paris Parliament in 1598, led this assembly to revoke the order to arrest and put to death a psychotic in Angers and ordered instead that the man be temporarily committed to a hospital.

6.

In conclusion, the following should be borne in mind. The sixteenth century closed with a definite attempt to study man's behavior in a systematic scientific way. The best summary of this principle could be found in Francis Bacon's treatise on the *Advancement of Learning* which reads: "The first article on the culture of mind will regard the different natures or dispositions of men . . . so that an artificial[27] and accurate dissection may be made of men's minds and nature and the secret disposition of each man laid open that from a knowledge of the whole, the precepts concerning the cures[28] of the mind may be more rightly formed. And not only the characters of dispositions impressed by nature should be received into this treatise, but those also which are otherwise imposed upon the mind by the sex, age, country, state of health, make of body, etc. And again, those which proceed from fortune as princes, nobles, common people, the rich, the poor, the magistrates,

27. This word meant "scientific" in the XVI and XVII centuries.

28. i.e. culture.

the ignorant, the happy, the miserable[29]." Here we have in a few words the summary of the foundation and the plan for work which the sixteenth century bequeathed to the future. It is interesting in this connection to note that now again England deserves the laurels of leadership as in the thirteenth century which marked the first awakening since the destruction of classical science and which produced the scientific mind of Roger Bacon.

As to the history of psychiatry proper, the sixteenth century demonstrates better than any other the following two points:

1. The actual leadership and the actual work in the process of liberation from the universal demonomania which accompanied the Renaissance of Arts and Sciences was mostly done by medicine. It was a problem which apparently no philosopher and no scientist was able to solve without medical leadership.

2. Psychopathology was thus conquered or reconquered by medicine—a fact unique in the whole history of medical science. For, the medical man by the very nature of his calling never had to force himself on humanity. When people were sick they sought help and thus the medical profession was born. The patient sought out the doctor because he needed him. Not so in cases of mental afflictions. As seen from the above, it was the medical man who had to assert himself, to demand a hearing, and to convince the sick that they were sick, or rather, to convince the world that the mentally ill were ill. In order to be able to perform this task, the traditionally conservative medical man had to accomplish an unusual and radical feat of psychological and sociological growth so as to develop in advance of his own age. This is perhaps the reason why psychiatry always lagged behind other medical sciences and why the real Renaissance of psychological medicine, if not its first birth, was delayed for many centuries as compared with other

29. *On the Advancement of Learning* VII. 3. Also quoted by Brett. Op. cit. Vol. II, p. 175.

branches of human knowledge. For Hippocrates, who freed medicine from the mystical influences of the ancient temples, and who freed with it its psychological branch to which the protestation voiced in "The Sacred Disease" bears ample testimony, marked a great beginning which was, as far as psychiatry is concerned, never fully sustained. As one reads Weyer one is impressed with the fact that he, like Hippocrates, and two thousand years after Hippocrates, was still trying to liberate psychiatry from the jurisdiction of the same authorities which *mutatis mutandis* were akin to the ancient Shaman, the sole judge and master over the mentally sick of the ancient races.

THE DEVELOPMENT OF THE STETHOSCOPE

An Exhibition

Showing the Work of Laennec and His Successors
Held in the Library February 13 to March 29, 1935

Arranged by
Paul B. Sheldon
and
Janet Doe

This exhibition was prepared, not as an exhaustive study of the stethoscope's history, but more as a survey of the salient points in the development of the instrument. The Academy's Historical Museum possessed several early and later stethoscopes. These were supplemented by material kindly lent by friends and interested institutions. An effort was made to show illustrations, if the instruments were not available. Failing both, a description was given, if possible that by the originator.

The Bibliographical Department of the Library has been very helpful in assembling the material for exhibition and in the preparation of this account, and the Librarian made numerous interested suggestions—to both of whom we are grateful.

Laennec and the First Stethoscope

René Théophile Hyacinthe Laennec (1781-1826)

In 1816 Laennec, a struggling physician of thirty-five, was working hard in the wards of the Paris hospitals. Physical diagnosis as practiced today hardly existed then. Percussion was scoffed at by all but a few. Physicians were just beginning to use watches in counting the pulse. Auscultation consisted merely in listening with the naked ear against the chest wall. Little was understood of what was heard. Infrequently heart sounds were intensified by placing a short *solid* wooden rod between the precordium and the examiner's ear.

While examining a patient's chest Laennec wished to employ such a rod. None being at hand, he attempted to improvise one by rolling sheets of paper into a solid roll. He was not quite successful and a small air space remained in the center of the roll. This *accident* resulted in the birth of the stethoscope, for the heart sounds were conducted to his listening ear as no solid rod had ever done. Astonished at the improvement, he set about experimenting with hollow rods of various materials, eventually selecting one of wood.

During the next three years he worked patiently correlating what he noted on physical examinations with what he saw at autopsy. The result was his book: *Traité de l'Auscultation Médiate et des Maladies des Poumons et du Coeur,* published in 1819. This is said to be the most important treatise on the thoracic organs ever written. In it he placed before the medical world the first descriptions and differential diagnoses of bronchiectasis, pneumothorax, hemorrhagic pleurisy, pulmonary gangrene, infarct, emphysema, and esophagitis. Even the terms he originated endure, such as "egophony," "pectoriloquy," "sonorous and sibilant râles."

Laennec was one of the greatest teachers of tuberculosis of all times. Because of the merit of his work he was honored and recognized as a great clinician and pathologist. He worked on at his study for seven years more, to die himself of pulmonary tuberculosis at forty-five, undoubtedly the victim of his labors.

1. Laennec's First Presentation of His New Method (1818).

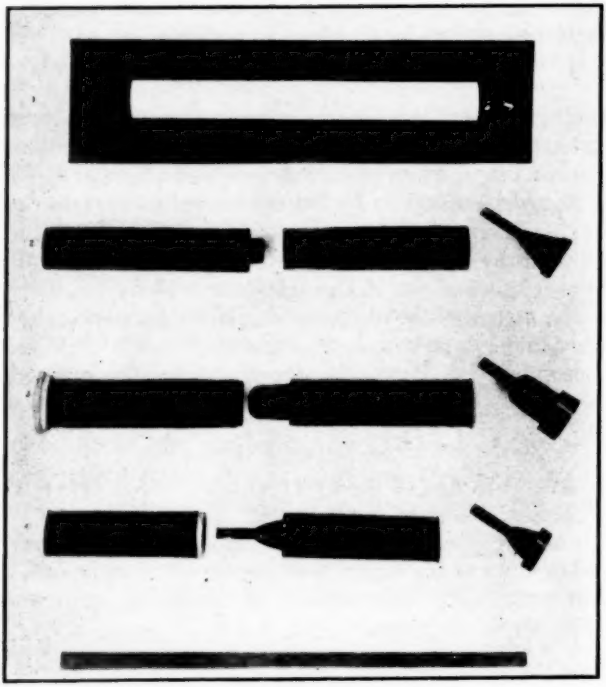
   L'art d'explorer les maladies du thorax au moyen de l'auscultation. *Mém. de l'Acad. roy. d. sc. de l'Inst. de France* (1818), *3:* pp. ccxxi-ccxxiii, 1820.

   On Feb. 28, 1818 Laennec submitted the results of his labors to the Académie des Sciences, which received them, it is said, with respect but without the slightest trace of enthusiasm. They were not published until 1820 and then only in the form of the Secretary's notes.

2. First Published Account (1818).

Mémoire sur l'auscultation à l'aide de divers instrumens d'acoustique . . . *Bull. Fac. de méd. de Paris*, 1818, pp. 129; 156; 171.

Laennec's lecture was read before the Faculté de Médecine, May 1 and 14, June 11, and July 9, 1818. It was not printed in full but merely noted.



3. Roll of Paper Like Laennec's (Fig. 1).

Cylinder or roll of paper, 16 "lignes" (a ligne is 1/12 of an inch) in diameter and 1 foot in length, formed of 3 notebooks of "beaten" paper rolled up very tightly, held together by gummed paper, and flattened out with a file at both ends. It is related that what first attracted Laennec's attention to the use of a hollow tube for auscultation was when passing through the court of the Louvre he saw some children playing about a long beam, and one would put his ear to the end of the beam and listen while the others tapped it lightly. Described by Laennec in *De l'auscultation médiate*, 1819, *1*:8-9.

4. WOODEN STETHOSCOPE LIKE LAENNEC'S FIRST MODEL (Fig. 2).

Originally brought from Paris by Dr. Henry Ingersoll Bowditch, who studied under Louis, 1832-1834, and there imbibed the teachings of Laennec.

Presented to the Trudeau School by his son, Dr. Vincent Y. Bowditch in 1916.

Kindly loaned by the Trudeau Sanatorium.

5. FIRST EDITION OF LAENNEC'S BOOK ON AUSCULTATION (1819).

De l'auscultation médiate, ou traité du diagnostic des maladies des poumons et du coeur, fondé principalement sur ce nouveau moyen d'exploration. Paris, J. A. Brosson & J. S. Chaudé, 1819. 2 v.

This was Laennec's masterpiece. Two editions appeared during his lifetime.

6. TRANSLATION OF THE FIRST EDITION OF LAENNEC'S BOOK (1821).

A treatise on the diseases of the chest, in which they are described according to their anatomical characters and their diagnosis established on a new principle by means of acoustick instruments. Translated . . . with a preface and notes by John Forbes. London, T. & G. Underwood, 1821.

Appearing two years after the publication of the first French edition, this translation did much to introduce and popularize the stethoscope and Laennec's work in England.

Forbes became a leading consultant in tuberculosis.

7. SECOND EDITION OF LAENNEC'S BOOK ON AUSCULTATION (1826).

Traité de l'auscultation médiate et des maladies des poumons et du coeur. Paris, J. S. Chaudé, 1826. 2 v.

Garrison's comparison, taken from the third edition, 1921, of his *Introduction to the History of Medicine,* is pertinent enough to quote:

> "In the first edition (1819), Laennec pursues the analytic method, giving the different signs elicited by percussion and auscultation, with the corresponding anatomic lesions (he was an expert pathologist). In the second edition (1823) [sic.], the process is turned about and the method is synthetic, each disease being described in detail in respect of diagnosis, pathology, and (most intelligent) treatment, so that this edition is, in effect, the most important treatise on diseases of the thoracic organs that was ever written."

8. Translation of Selected Passages from Laennec's Book.

Translation of selected passages from "De l'auscultation médiate" (first edition). With a biography by William Hale-White. London, John Bale, Sons & Danielsson, 1923.

An excellent translation of Laennec's book. It also contains the story of Laennec's life with illustrations.

9. Good, Brief Articles on Laennec and the Stethoscope.

Morgan, James Dudley (1862-1919).

Laennec: the great internist. *Washington M. Ann. 9*:250-258, 1910.

Lamb, Daniel Smith (1843-1929).

The stethoscope: a history. *Washington M. Ann. 9*:260-269, 1910.

Camac, Charles Nicoll Bancker (1868-).

Laennec and his stethoscope. *M. News, 86*:918-923, 1905.

10. Early Contemporary Comment (1818).

N[acquart], J. B.

Des instrumens en médecine. *J. gén. de méd. . . . 64*:135-136, 1818.

This amusing commentary was written a few months after Laennec's announcement of his discovery.

11. Two Stethoscopes Contemporary with Laennec (1819?) (Fig. 3).

Stethoscopes such as Laennec used. The original cylinder model was cut in two for convenience. The pectoral end is hollowed out. The wooden plug was fitted into the pectoral end when listening for heart sounds.

12. An Early Modification of Laennec's Stethoscope (1820) (Fig. 4).

Haden's modification of Laennec's stethoscope. The metal tube makes for a firmer joint than in the earlier models. Charles T. Haden, a physician who worked at the lathe with Laennec, introduced the stethoscope into England.

13. Laennec's Modification (Fig. 5).

Laennec, in improving his stethoscope, probably went no further than this type, a shorter, somewhat flaring, unjointed wooden tube with an ear-piece.

14. Portrait of Laennec.

Laennec à l'Hôpital Necker ausculte un phtisique. 1816. Mezzotint after painting (?) by T. Chartrem. Kindly loaned by Dr. J. A. Miller.

Laennec's Immediate Successors

15. Piorry's Adaptation (1828).

Piorry, Pierre Adolphe (1794-1879).

De la percussion médiate et des signes obtenus à l'aide de ce nouveau moyen d'exploration dans les maladies des organes thoraciques et abdominaux. Paris, J. S. Chaudé, 1828.

Opened at plate showing illustrations of Piorry's stethoscope with various pleximeters.

16. Piorry's Stethoscope (1828) (Fig. 6).

A remarkably well preserved Piorry stethoscope. Photograph shows the same instrument as assembled when not in use. An extra wooden tube could be added if desired. The wooden cone was inserted into the pectoral end for cardiac examinations. The disc is a pleximeter, an invention of Piorry. This represented the first type of easily portable instrument. It was first made in 1828 and was the type most in use up to 1883. Ivory was introduced into the manufacture of stethoscopes in 1834.

17. First Semi-Flexible Stethoscope (1829).

Comins, Nicholas P.
New stethoscope. *London M. Gaz.*, *4*:427-430, 1829.

In 1829 Nicholas P. Comins of Edinburgh, in a letter to the editor of the *London Medical Gazette*, reported his invention of the first flexible stethoscope. As shown in the illustration (p. 428) it consisted of jointed wooden tubes which could be adjusted to varying angles in one plane, so that the examiner's face need not be directly over the patient's. This was often desirable because of the advanced stage of tuberculosis from which many of the patients suffered.

18. Adaptation of Comins' Stethoscope (1829).

Comins, Nicholas P.
New stethoscope. *London M. Gaz.*, *4*:427-430, 1829.

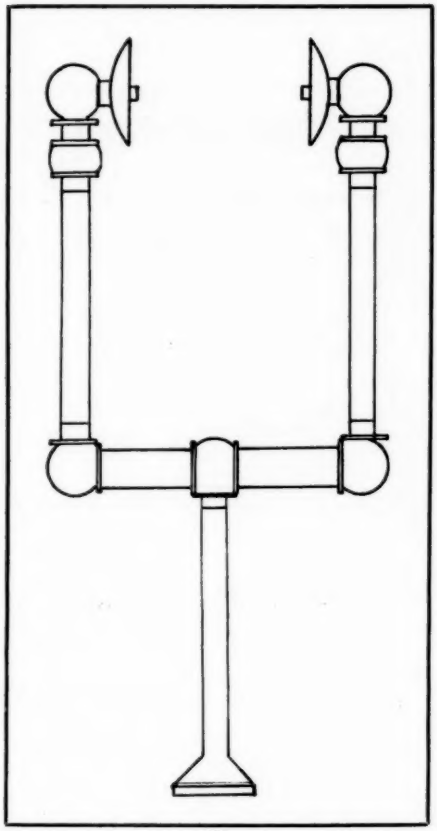
On page 430 Comins made the first published suggestion of employing both ears in auscultation, but he did not furnish a sketch of a binaural stethoscope and evidently never made such an instrument. The conjectural sketch shown is simply Comins' wooden tube stethoscope adapted for both ears. (Fig. 13a).

C. J. B. Williams, in 1843, acknowledged this idea as the father of his binaural instrument, which was also of wood.

19. Demountable Stethoscope (before 1870) (Fig. 11).

This type, employed prior to 1870, is still used extensively in Europe. When in use, holes in side of ear-piece are covered by thumb and finger. When not in use, small end of stem passes through these holes, as shown in photograph. Easily carried in pocket. Photograph shows position when not in use.

Kindly loaned by Dr. A. R. Lamb.



13A

Conjectural Sketch of Adaptation of
Comins' Stethoscope (1829)

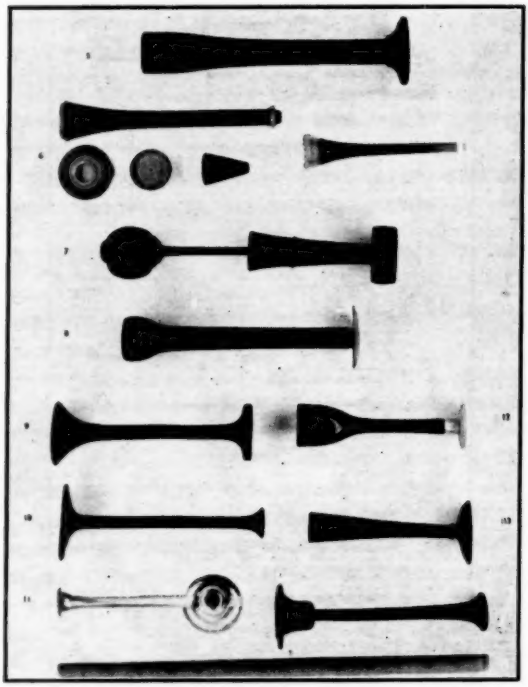
Later Development of Monaural Stethoscope

20. Flexible Tube Stethoscope (1832).

Stroud, William (1789-1858).

On mediate auscultation. *London M. Gaz.* (1841-42), n. s. *1*:6-9, 1842.

Stroud, in 1832, adapted to auscultation the flexible speaking tube commonly used by deaf persons. One hand held the ebony nipple in the examiner's ear and the other held the ebony chest piece in



place. The flexible tube was made of spiral wire covered by "caoutchouc-cloth." (This easily rubberized cloth was first used about 1832; rubber tubing came much later). Stroud's instrument is shown on p. 7.

21. Examples of Stroud's Type of Flexible Stethoscope (1832) (Figs. 14 and 15).

22. Flexible Tube Stethoscope without Ear-Piece (1838).

Sibson, Francis (1814-1876).

The flexible stethoscope. *London M. Gaz.* (1840-41), n. s., *2*:911-912, 1841.

In 1838 Sibson of Edinburgh dispensed with the ear-piece of Stroud's stethoscope. He simply pushed the small open end into his ear. He was thus able to use one hand to hold the instrument on the chest and with the other to feel the pulse. From his description he was evidently timing murmurs. His modification is illustrated on p. 912.

23. Flexible Tube Stethoscope with Special Ear-Piece (1840).

Bird, Golding (1814-1854).

Observations on the advantages presented by the employment of a stethoscope with a flexible tube. *London M. Gaz.* (1840-41), n. s., *1*:440-442, 1841.

Golding Bird was one of the first to use a flexible stethoscope. It was much like Stroud's save that the ear-piece was a disc cemented to the ball through which the flexible tube passed. A sketch of his instrument is shown.

24. Bigelow's Compact Stethoscope (before 1846) (Fig. 7).

Henry J. Bigelow invented what was then considered a very convenient stethoscope of cedar. The wide side of the ear-piece could be placed against the chest and the stethoscope used thus as a plexímeter. The worsted ball covered with velvet has an ebony handle. It was used as a percussor.

25. Examples of Monaural Stethoscopes (Figs. 5-13).

The ebonite stethoscope (Fig. 10) was kindly loaned by Trudeau Sanatorium.

26. Early American Manual on Stethoscopes (1846).

Bowditch, Henry Ingersoll (1808-1891).

The young stethoscopist, or the student's aid to auscultation. N. Y., J. & H. G. Langley, 1846.

This is a most interesting manual on auscultation. It is opened at pp. 14-15, showing various types of stethoscopes: Laennec, Piorry, Bigelow.

Bowditch was a student of Louis. The stethoscope used by him is shown in another case.

27. "The Stethoscope Song."

Holmes, Oliver Wendell (1809-1894).

Poems. Boston, Ticknor & Fields, 1856, pp. 272-277.

This characteristic poem, first published in 1849 and written either in 1847 or 1848, at the time Holmes was giving up medical practice (he became Dean of the Harvard Medical School in 1846) throws a humorous light on what may have been his own and his students' early difficulties. The doctor evidently carried one of Bigelow's stethoscopes!

28. Williams, a Student of Laennec.

Williams, Charles James Blasius (1805-1889).

Memoirs of life and work. London, Smith, Elder & Co., 1884.

Charles J. B. Williams was a student under Laennec at La Charité in 1825. On pp. 40-41 of his *Memoirs* he gives some reminiscences of those days.

29. Objection to Flexible Stethoscope (1840).

Williams, Charles James Blasius (1805-1889).

The pathology and diagnosis of diseases of the chest. . . . 4. ed. London, John Churchill, 1840.

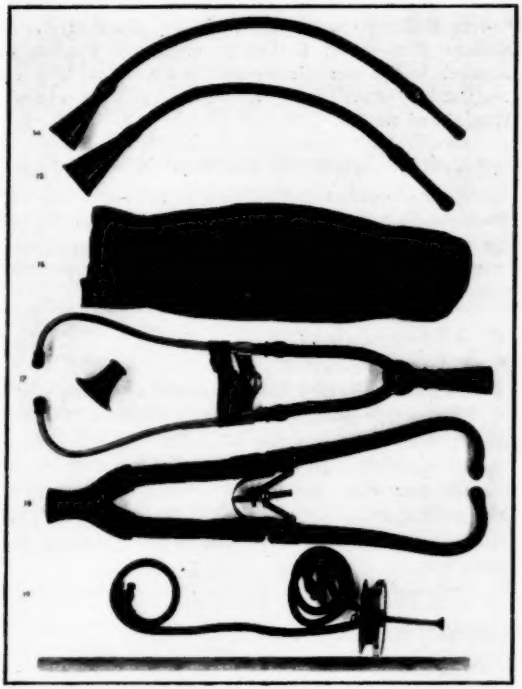
On returning to England from his studies under Laennec, Williams did much to popularize auscultation. He became an authority in his day on "consumption" and diseases of the chest. In his book on diseases of the chest, he advocates a light wooden stethoscope (shown in Plate I, frontispiece), stating his objection to the little used flexible instrument.

30. Straight Wood Stethoscope Still in Favor (1842).

Williams, Charles James Blasius (1805-1889).

On the construction and application of instruments used in auscultation. *London M. Gaz.* (1842), n. s., *1*:400-404, 1843.

On p. 402 is shown another of C. J. B. Williams' light wooden stethoscopes. Fig. 3 shows a whalebone pleximeter so fashioned as to fit between ribs. Fig. 4 is a plexor, or, percussor, an instrument then frequently used to strike the pleximeter. Eventually fingers were found more satisfactory.



The Binaural Stethoscope

31. THE FIRST BINAURAL STETHOSCOPE (1843).

Williams, Charles James Blasius (1805-1889).

On the acoustic principles and construction of stethoscopes and ear trumpets. *Proc. Roy. Med. & Chir. Soc. London* (1873), *7*:189-194, 1875.

In 1843 C. J. B. Williams, recalling the suggestion of Comins, made the first binaural stethoscope. It was awkward and inflexible, being made of wood and metal. So far no drawing of it has been found. Williams, at a meeting of the Royal Medical and Chirurgical Society, Oct. 28, 1873, stated that he constructed such a stethoscope "thirty years ago." (p. 193)

32. SELF-ADJUSTING STETHOSCOPE OF CAMMANN (1855).

Self-adjusting stethoscope of Dr. Cammann. *New York M. Times*, *4*:140-142, 1855.

George P. Cammann of New York City did much to improve the binaural stethoscope. In 1855 he introduced the instrument here illustrated. The chest-piece was of ebony, the ear tips of ivory, and the elastic portion of the tubes of spiral wire covered by "gum elastic" and cloth.

33. Examples of Cammann's Stethoscopes (Figs. 16-18).

The stethoscope was carried in a chamois-skin bag or in a box. Shown ready to use: the large bell chest-piece was often held before the patient's mouth while the chest was percussed, to elicit "cracked pot" sound. Smaller chest-pieces were for ordinary auscultation.

34. "The American Laennec."

Flint, Austin (1812-1886).

Physical exploration and diagnosis of diseases affecting the respiratory organs. Phil., Blanchard & Lea, 1856.

Austin Flint was sometimes called the "American Laennec." He ranked especially high as a diagnostician in diseases of the chest and did more than anyone else to bring the binaural stethoscope into general use.

He was President of The New York Academy of Medicine, 1873-1875.

His text-book is opened to the chapter on *Auscultation.*

35. Stethoscope Used by Austin Flint.

Presented to Frederic S. Dennis by Mrs. Austin Flint and given by Dr. Dennis to The New York Academy of Medicine.

36. Differential Stethoscope (1859).

Alison, Somerville Scott (1813-1877).

On certain auditory phenomena. *Roy. Inst. Great Britain. Notices of proc. 3*:63-70, 1859.

The instrument shown on p. 64 was devised by Scott Alison, to compare intensity of sound coming from two areas of the chest.

It was not found subsequently to be of much value.

37. Double-Bell Stethoscope (1860?).

Lyons, Robert Spencer Dyer (1826-1886).

On a double-bell stethoscope, *Dublin Quart. J. Med., 33*:364-366, 1862.

Another stethoscope (illustrated on p. 365) for the comparison of relative intensity of sounds. This had two chest-pieces and a single ear-piece. The arms of gutta percha were slightly flexible. Both chest-pieces were to be used at the same time. It was another of the variations which proved of little value.

38. First Diaphragm Stethoscope (1869).

Stern, Samuel (1839-1915).

Zur Theorie der Auskultation und Perkussion. *Wien. med. Presse, 10*:778-782; 802-803, 1869.

Samuel Stern's instrument consisted of a hollow conical tube, across the larger end of which was stretched a membranous diaphragm. The ear tubes opened separately into the hollow tube.

39. Echoscope (1871).

Speir, Samuel Fleet (1838-1895).

Aids for the diagnosis and treatment of certain diseases. *M. Rec., 6*:174-175, 1871-2.

A stethoscope which could be held in place by pushing the examiner's chin against the rest marked by the arrow. Thus the examiner could use both hands in percussion. It was used during a wave of auscultatory percussion of aneurysms, effusions, tumors, etc. Description and illustration on p. 175.

40. Early Diaphragm Modification (1876).

Yeates,

New form of stethoscope. *M. Press & Circ.*, n. s., *22*:58, 1876.

Air forced in stopcock expanded two parallel sheet-rubber drum heads. Several students might listen at the same time by adding the necessary elastic tubes.

41. Paul's Stethoscope with Rubber Bulb (1881).

Hudson, Erasmus Darwin, Jr. (1843-1887).

A manual of the physical diagnosis of thoracic diseases. N. Y., William Wood & Co., 1887.

Another effort to combine percussion and auscultation in one act resulted in the invention of this stethoscope by Constantin Paul (1881). The chest-piece was made to adhere to the patient's skin by a vacuum, leaving both of the examiner's hands free for percussion. Book opened at p. 70, showing illustration.

42. Caliper-Stethoscope (1881).

An addition to the binaural stethoscope. *London M. Rec. 9*:219, 1881.

Invented by Irwin Palmer, this ordinary binaural stethoscope was also used as a pair of calipers. The elastic band is replaced by a circular box-spring; a dial plate is attached to the joint. It was apparently first described in the above article.

43. A Versatile Stethoscope! (1884).

Smith, Ebenezer Thomas Aydon.
A new form of stethoscope. *Brit. M. J., 1*:909-910, 1884.

Its promoter admits that its main function is to promote hearing, but in case of necessity, by simply rearranging its parts, one can use it as a monaural, a binaural, or a differential stethoscope, an otoscope, a nasal tube with funnel for feeding the very ill, a nasal douche tube, a catheter, an enema tube, or a tourniquet.

44. Hard Rubber Binaural Stethoscope (1885).

Denison, Charles (1845-1909).
An improved binaural stethoscope. *M. Rec., 27*:391, 1885.

Denison substituted hard rubber for the metal customarily used in the arms of the instrument. As shown in the illustration, the sound canal diminishes in diameter as it progresses from the bell-shaped chest-piece to the ear-piece.

45. Denison's Hard Rubber Binaural Stethoscope (1885).

Kindly loaned by Trudeau Sanatorium.

46. Pickering's "Panarkes" Stethoscope (1887).

Pickering's "Panarkes" stethoscope. *Brit. M. J., 2*:1342, 1887.

This illustrates some modifications of a single stethoscope. When used as in Fig. 1 it was manual and could be carried by internes in a button hole. As Fig. 2 it had the large ear-piece preferred by some. Fig. 3 was bimanual with flexible tubes. Fig. 4 was manual with flexible tubes. Fig. 5 shows the stethoscope serving as a handle for a percussion hammer, the ear-piece in Fig. 2 serving as the pleximeter.

47. Combination Monaural and Binaural Stethoscope (1887).

Batten, Rayner Winterbotham (1835-1909).
Binaural stethoscope. *Brit. M. J., 2*:1342, 1887.

48. Modification of Cammann's Stethoscope (1885).

Cammann, Donald Muhlenberg (1852-).
A modification of Cammann's binaural stethoscope. *New York M. J., 41*:27-28, 1885.

A modification by Cammann of Constantin Paul's idea, in which the rubber bulb was built around the chest-piece of the stethoscope. The stethoscope was thus held by a vacuum against the chest wall.

49. Constant Ear-Pressure Stethoscope (1891).

Herschell, George Arieh (1856-).

An improved binaural stethoscope. *Lancet, 1*:609, 1891.

The ear-pieces of Herschell's instrument exerted a constant pressure of the proper intensity. He substituted a clamp for the elastic loop usually used to join the auditory tubes.

50. German Silver and Hard Rubber Stethoscope (1895).

Knapp, Mark Israel (1868-1920).

A new and improved stethoscope. *M. Rec., 48*:682-683, 1895.

By covering German silver tubes with soft rubber tubing, Knapp was able to eliminate certain extraneous sounds.

51. Phonendoscope (1894).

Bianchi, Aurelio.

Il fonendoscopio. *Policlin.* (sez. med.), *1*:179-180, 1894.

Bianchi's own account of his phonendoscope, with illustrations.

52. Example of Phonendoscope (Fig. 19).

53. Phonendoscope (1896).

Manges, Morris (1865-).

The phonendoscope. *New York M. J., 65*:42-45, 1897.

Read before The New York Academy of Medicine, Oct. 20, 1896. Opened to show the instrument in use.

Baruch, Herman Benjamin.

The phonendoscope. *M. Rec., 50*:624-626, 1896.

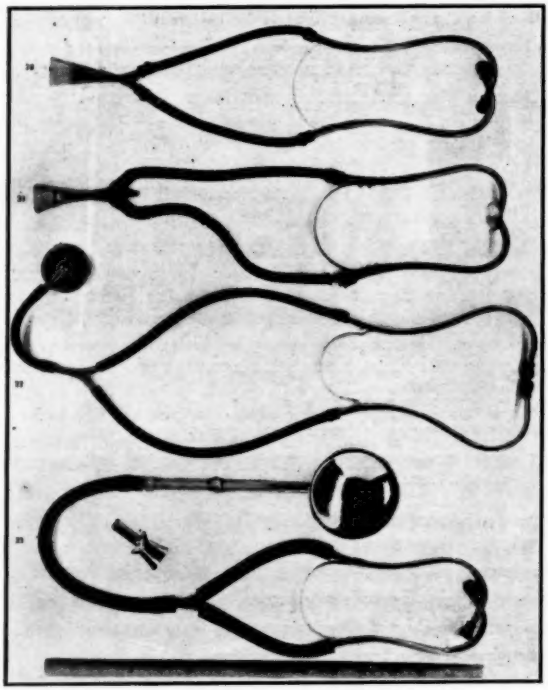
The phonendoscope, well described in this article, is a diaphragm which magnifies the usual sound. It was intended as an improvement on the usual types of stethoscope. Its advocates hoped that it would prove a great aid in outlining organs. The chest-piece was held over the organ or tumor examined, while a finger was drawn over the skin with a gentle stroking motion. As the finger approached the very edge of the organ or tumor, the sound changed its intensity strikingly. The procedure is little used today.

54. New Stethoscope with Armamentarium (1898).

Knopf, Sigurd Adolphus (1857-).

A new binaural stethoscope with armamentarium for complete physical examination. *J. A. M. A., 30*:27-28, 1898.

In 1898 S. A. Knopf of The New York Academy of Medicine was advocating the use of such a set. The adjustable ear-pieces, various sizes and shapes of chest-pieces, including one held to the chest wall by suction, a Flint percussion hammer, and a pleximeter are shown in the illustration.



55. Combination Single or Differential Stethoscope (1903).

Wetherill, Henry Emerson (1871-).
An improved form of stethoscope. *Am. J. M. Sc., 126*:884-887, 1903.

A rather recent return to previous features in stethoscopic construction. This stethoscope (shown on p. 884) has separate chest-pieces which can be combined as one or used individually as a differential stethoscope. The flexible projections from each tube, stroked or tapped by the finger, were used in auscultatory percussion. Diaphragms could be slipped into the bells if wished.

56. Trudeau's Own Stethoscope (Fig. 20).

Kindly loaned by Trudeau Sanatorium.

57. SIR WILLIAM OSLER'S STETHOSCOPE (Fig. 21).

Used until his death in 1919. Given by Lady Osler to the Academy's Librarian and kindly loaned by him for the exhibition.

Modern Stethoscopes

58. SIMPLE DIAPHRAGM TYPE OF STETHOSCOPE MUCH USED TODAY (1901).

Invented by R. C. M. Bowles, of Massachusetts.
Kindly loaned by Fred Haslam and Company.

59. DOUGLASS STETHOSCOPE (1910) (Fig. 22).

Devised by Alfred A. Douglass. It is an improvement on the Bowles stethoscope and is more sensitive.

60. FETAL HEART STETHOSCOPE, "LEFFSCOPE" (1927) (Fig. 23).

Leff, Morris (1889-).

A stethoscope for auscultating the fetal heart. *Am. J. Obst. & Gynec., 20*:108-109, 1930.

Designed by Morris Leff. The weight of the bell (2 lbs.) ensures even contact and permits free use of the hands. A regular bell may also be used for ordinary work. Kindly presented to the Academy's Historical Museum by Dr. Leff.

Electrical Stethoscopes

61. EARLY WORK WITH ELECTRICAL STETHOSCOPE (1907).

Einthoven, Willem (1860-1927).

Die Registrirung der menschlichen Herztöne mittels des Saitengalvanometers. *Pflüger's Arch. f. d. ges. Physiol., 117*:461-472, 1907.

The earliest important work was done by Einthoven. He made records of normal heart sounds and murmurs in 1907, using a carbon transmitter. Others improved the recording devices.

62. MULTIPLE ELECTRICAL STETHOSCOPE (1923).

Cabot, Richard Clark (1868-).

A multiple electrical stethoscope for teaching purposes. *J. A. M. A., 81*:298-299, 1923.

In 1923 H. B. Williams, Richard C. Cabot, and C. J. Gamble developed an electrical stethoscope suitable for group instruction. A recording galvanometric attachment gave visual records of what was heard.

63. Multiple Electrical Stethoscope (1924).

Gamble, Clarence James (1894-) & Replogle, D. E.
A multiple electrical stethoscope for teaching. *J. A. M. A.*, *82*:387-388, 1924.

The instrument is here described in considerable detail. References are given to the work of others on the subject.

64. Photographs of Electrical Stethoscope Developed by Cabot, Gamble (*et al*) and the Western Electric Company.

1. The instrument.
2. Drs. Cabot and Gamble using the electrical stethoscope.
3. The electrical stethoscope in classroom instruction.

Photographs kindly loaned by the Bell Telephone Laboratories.

65. Electrostethograph (1934).

The latest, and as yet unpublished, work in recording murmurs. It should be remembered that in order to obtain the best records the murmur is first located in the usual manner and then the electrostethograph is used to read it. The photographs show:

1. Cambridge electrostethograph for amplifying heart sounds.
2. Normal electrostethogram taken over three areas.
3. Electrostethogram taken over three areas: condition, aortic stenosis, Flint murmur.
4. Electrostethogram taken over three areas: condition, aortic stenosis.

Photograph no. 1 kindly loaned by the Cambridge Instrument Company, New York City; photographs nos. 2, 3, 4 by the Department of Physiology, Columbia University.

TENTH SERIES

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NOVEMBER 8

Newer drug therapy.

A survey of drugs introduced into therapy during the past few years with a consideration of the claims made for them and the substantiating experimental and clinical evidence. Mention will be made of certain older drugs where new applications have been found.

MILTON BENJAMIN ROSENBLUTH, *Associate Physician, Bellevue Hospital.*

NOVEMBER 15

The diagnosis and treatment of intestinal infections occurring in New York City.

Acute and chronic symptoms referable to the gastrointestinal tract may result from protozoal or bacterial infection. The accompanying picture is seldom indicative of the nature of the infection. Special diagnostic methods are frequently necessary. Successful treatment often depends upon accurate identification of the invader. Therapeutic measures include medication, diet, vaccines, and sera.

THOMAS T. MACKIE, *Research Associate, Cornell University Medical College.*

NOVEMBER 22

Points in medical diagnosis.

Methods of diagnosis and differential diagnosis that a long experience has proven to be of value. Stress will be laid upon conditions in which laboratory methods are not of decisive aid. The affections touched upon will be mainly those of the chest and abdomen.

EMANUEL LIBMAN, *Consulting Physician, The Mount Sinai Hospital.*

DECEMBER 6

The significance of uterine bleeding in later life. (Lantern slides)

A brief discussion of the conditions which maintain the normal menstrual function beyond the average age of the menopause. Recognition of conditions which may cause abnormal uterine bleeding. Methods of differentiation between benign and malignant causes. Discussion of treatment appropriate to the elimination of the various underlying factors.

WILLIAM P. HEALY, *Attending Surgeon, Department of Gynecology, Memorial Hospital.*

DECEMBER 13

The significance of the human constitution in clinical medicine.

The lecture will discuss the structure of man in the sense, first, of the two factors supplied through inheritance and the impact of environment; and, second, that the human being is a psychosomatic entity. Disease is the expression of conflict between two clearly defined forces, one, the individual person, and the other, the outside agent. In dealing with the nature of the former, emphasis will be placed upon the fact that man is a mosaic of interdependent physical and psychological components and that he should be viewed from the biological standpoint as a whole.

GEORGE DRAPER, *Associate Physician, Presbyterian Hospital.*

DECEMBER 20

The present status of arthritis and the treatment of it.

World-wide statistics show that arthritis constitutes a leading sociologic and economic burden. In addition to long recognized precipitating factors, of which infection is one, most students agree that there exists a prodromal background, often hereditary. The pathology of arthritis is now conceived in terms of two main types, atrophic and hypertrophic. The underlying factors producing these are varied and there is ample evidence to incriminate the nervous and vascular as well as other systems of the body. These considerations require that therapy be adapted to the given case; but, also that it be based upon principles arising out of these premises. Results of critical therapy are gratifying. They suggest unmistakably the possibility of control of the disease as a sociologic burden.

RALPH PEMBERTON, *Professor of Medicine, Graduate School of Medicine, University of Pennsylvania.*

1936

JANUARY 3

Evaluation of focal infections from the internist's viewpoint.

A brief discussion of the history of the subject is presented. This is followed by a consideration of the pathology concerned. A somewhat detailed statement of the foci most frequently involved follows. The dangers of overstatement and premature conclusions of unscientific basis are considered and throughout, the therapeutic measures advisable are particularly emphasized.

HARLOW BROOKS, *Attending Physician, Bellevue Hospital.*

JANUARY 10

Recent advances in endocrine research and their value in clinical practice.

A critical presentation of recent advances in the physiology of the ductless glands, emphasizing the newer hormones and glandular interrelationships and their clinical application. Classification of endocrine disorders on the basis of recent physiologic discoveries. Diagnostic value of recent clinical and laboratory tests in common endocrine disorders. Contribution of endocrinology to various branches of medicine: disorders of metabolism, cardiovascular diseases, gynecology, genito-urinary surgery, neuro-psychiatry. Endocrine therapy: methods of treating disordered endocrine function, endocrine and non-endocrine methods, objectives of therapy, principles of organotherapy, the clinical value of the newer glandular remedies. Treatment of endocrinopathies, indications for and clinical value of endocrine treatment in general medicine, in functional disorders, in gynecology, in neuro-psychiatry, etc.

A. S. BLUMGARTEN, *Associate Attending Physician, Lenox Hill Hospital.*

JANUARY 17

The inter-relationship of physical symptomatology and personality disorders.

The discussion will cover the various inter-relationships of physical symptoms and personality problems. A simple discussion of the physiological mechanisms and the nature of the somatic symptoms will be presented, particularly as these are encountered in incipient stages of the constitutional psychoses, hypochondriacal states, hysterical conditions and anxiety states. The discussion will also cover personality problems as complicating factors in patients who present well-defined physical pathology, such as cardiovascular disease, hyperthyroidism, etc.

HOWARD W. POTTER, *Professor of Clinical Psychiatry, Columbia University.*

JANUARY 24

The problem of the jaundiced patient.

The various types of jaundice will be discussed, and the mechanism by which jaundice is brought about will be reviewed. The major emphasis will be placed upon those conditions in which jaundice is an expression of a lesion requiring surgical attention. The preoperative study and preparation of the jaundiced patient, and the postoperative care will be reviewed. The alterations in liver function which occur in chronic hepatitis and cholangeitis together with the alterations in intestinal function which occur in biliary tract disease will be presented.

I. S. RAVDIN, *Professor of Research Surgery, University of Pennsylvania School of Medicine.*

JANUARY 31

Recent advances in the diagnosis and treatment of genito-urinary infections.

ALFRED T. OSGOOD, *Professor of Urology, New York University College of Medicine.*

FEBRUARY 7

Diagnosis and treatment of diseases of the venous system.

Embryology, anatomy, pathology, pathological physiology, diagnosis, treatment, indications for and against surgery of the venous system in the extremities and body as a whole; the ambulatory and surgical methods of treating varicosities; the necessity of proper diagnosis of the degree of patency of the superficial and deep venous systems in the extremities; experience with simultaneous higher venous ligation concommitant with arterial ligation for the prevention of gangrene. The clinical importance and application of venous pressure will be reviewed.

BEVERLY CHEW SMITH, *Assistant Attending Surgeon, Presbyterian Hospital.*

FEBRUARY 14

Bulkley Lecture: *The improvements in the ability of the medical profession to treat cancer.*

Prior to 1896 the only method of treating cancer was to destroy the tissue by actual cautery or to remove it by excision. Through the discoveries of Roentgen and Curie, other agencies became available, and at the moment still other methods are being developed. An attempt will be made in this lecture to survey and evaluate the therapeutic capacities and limitations of the various technics.

FRANCIS CARTER WOOD, *Director of Laboratories, St. Luke's Hospital.*

FEBRUARY 21

Feeding of infants and children by the general practitioner.

The practitioner should know the food requirements and general technic of feeding of normal and sick infants, both on breast and bottle. The correct diet and hygiene of older children are just as important, and there is no excuse for disregarding them in the care of any child, sick or well.

CHARLES HENDEE SMITH, *Professor of Pediatrics, New York University College of Medicine.*

FEBRUARY 28

Recent advances in vitamin therapy.

ELMER V. McCOLLUM, Ph.D., *Professor of Biochemistry, Johns Hopkins University.*

MARCH 6

Diagnosis and treatment of peripheral vascular disease.

A critical review of the recent advances which have produced a new conception of the diagnosis and treatment of these diseases. Methods which have resulted in a great decrease in amputation rate will be outlined. The technic for determining the correct level for amputation, when necessary, will be given. Treatment will be stressed. The following diseases will be included: Thrombo-angiitis obliterans, Raynaud's disease, senile and diabetic arteriosclerosis, scleroderma, varicose ulcers. The status of intravenous typhoid vaccine, saline and citrate therapy, pancreatic tissue extract, the choline compounds, passive vascular exercise (paevex), sympathetic ganglionectomy, contrast baths, thermostatically controlled cradles, iontophoresis and other therapeutic measures will be considered.

IRVING S. WRIGHT, *Chief of the Vascular Clinic, New York Post-Graduate Hospital.*

MARCH 13

Agranulocytosis with special reference to hematology, etiology and treatment.

Clinical variations of agranulocytosis and its differentiation from other types of oropharyngeal infections and blood dyscrasias. Early recognition of the three types of agranulocytosis by means of the blood picture. Consideration of drugs, sepsis, and constitutional peculiarities as etiological factors. Course, complications, treatment and prognosis.

N. ROSENTHAL, *Associate in Medicine and Hematologist, The Mount Sinai Hospital.*

MARCH 20

Diagnosis and treatment of syphilis of the central nervous system.

A consideration of vascular accident in the nervous system depending upon lues; of localized luetic meningitis, the treatment of gummata, diagnosis and treatment of general paresis, tabes dorsalis, including tabetic crisis, a consideration of artificial fever therapy, tryparsamide, and other arsenical preparations.

FOSTER KENNEDY, *Professor of Clinical Neurology, Cornell University Medical College.*

MARCH 27

The ambulatory treatment of peptic ulcer.

(a) A logical and effective method, dietary and medicinal, will be described in detail for the treatment of peptic ulcer in patients continuing with their activity. Which patients come under this heading and which are to be excluded? (b) An analysis will be offered of the claims made for a number of drugs recently introduced in the treatment of peptic ulcer (citrosalven, emetine, insulin, larostidin, mutaflor, okrin, salvacid, synodal, etc.) (c) Other methods of treatment will be discussed and evaluated; duodenal intubation treatment of Einhorn; pepsin treatment of Gloessner; mucin treatment of Fogelson; alkalinized milk drip treatment of Winkelstein, etc. (d) A general diet slip which the physician can adjust and give to his individual patient for his respective gastric disturbance, will be given to the members of the audience.

A. L. GARBAT, *Attending Physician, Lenox Hill Hospital.*

APRIL 3

Recent advances in treatment of bacterial infections.

Recapitulation of present knowledge of serum therapy; a new conception of toxins as brought out by the phenomena of local and general reactivity to bacterial filtrates; the possible rôle of these toxins in chronic and subacute infections; active acquired specific immunity; passive antitoxic immunity with special reference to B. typhosus and meningococcus; interpretation of non-specific immunity; the rôle of secondary infections and possible new methods of passive and active protection against these.

GREGORY SHWARTZMAN, *Bacteriologist, The Mount Sinai Hospital.*

CHARLES NORRIS, M.D.
1867-1935

A distinguished and colorful figure was removed from the ranks of New York medicine by the death of Dr. Charles Norris, which occurred on September 11th, 1935, at the age of 67 years.

A man of fortunate birth, of scientific training, and intellectual tastes, he added to these advantages a broad acquaintance with human nature, a fine sense of humor and proportion, and democratic habits, which equipped him for success in any field, and were particularly fortunate in his work as Chief Medical Examiner of the City of New York. The abuses and absurdities of the old Coroner's system he replaced with a modern organization covering all the necessary branches of legal medicine, extended the service in a systematic manner over the entire metropolitan area, introduced high standards of scientific investigation, and placed the department on a par with the best existing in any large city in the World. He accomplished all this in an unfamiliar political atmosphere which was merely tolerant, and by dealing wisely and firmly with agents who could have little knowledge of the real significance of his work. His strong personality, backed by great technical knowledge and deep sincerity, enabled him to carry to complete success a project which in less competent hands might have ended in embarrassing failure. The initiation of the office of Chief Medical Examiner by a man of this character demonstrated to the people of this City the responsible and dignified nature of this position, and revealed the rare and peculiar qualities required for its proper conduct.

That Dr. Norris' success was based upon long preparation and training in many fields of medicine, scientific and practical, is shown by the story of his early years. He was born in Hoboken, December 4th, 1867, the son of Joseph and Frances Stevens Norris. His family had long been established at Norristown, Pa.

He attended Cutler's school in New York, was graduated from Yale Scientific School in 1888, and from the College of Physicians and Surgeons in 1892. In 1892-1894 he was an interne in the Roosevelt Hospital, serving under Delafield, Draper, and Thomson. Here he contracted small-pox, which he cheerfully accepted, and weathered the disease on North Brother Island.

After a short period in Germany, he entered the laboratory of the College of Physicians and Surgeons, and under Dr. T. Mitchell Prudden he began a series of original studies in bacteriology and pathology. His first experimental study, in 1897, concerned the bactericidal action of lymph from the thoracic duct of the dog. He developed new methods for the isolation and study of anaerobic microorganisms, which at that time were found difficult to cultivate. Among important toxicological studies were several relating to poisoning by wood alcohol and tetra-ethyl lead.

A University career thus seemed to open, and Dr. Norris pursued it for a time by accepting a position as Professor of Pathological Anatomy in the new Cornell school, but soon he decided that a University environment was not to his liking, and in 1904 he accepted the opportunity to become head of the Department of Pathology in Bellevue Hospital. Here he made his first important contribution to medical organization, by designing and equipping the large new laboratory of Bellevue and the new City Morgue. This was the joint product of Dr. Norris and Dr. Prudden. In it they combined the City Morgue with the department of pathology of the hospital, to the great advantage of both institutions, and they provided abundant quarters for pathological service and research, as well as facilities for medico-legal autopsies and toxicology. During the following twelve years Bellevue Hospital enjoyed, for the first time in its history, a thoroughly adequate pathological service, and the morgue service was conducted with increased efficiency. In 1917 Dr. Norris was chosen as the first incumbent of the new office of Chief Medical Examiner of New York City, which after a long campaign

of agitation, replaced the old coroners system. This signal honor and responsibility came to him after a notably severe, competitive, technical examination, and very thorough consideration by competent authorities of the needs of the situation. This difficult choice proved to be most fortunate, for Dr. Norris immediately began to exhibit those remarkable qualities of professional competency and personal magnetism which carried him through many difficulties and won the confidence of all the varied interests which centre in the Medical Examiner's office. The various political figures whom he met soon seemed to recognize in him a man of absolute integrity and scientific authority. He met mayors and commissioners, doctors and patients, bereaved friends and criminals, with the same frankness and facility.

He accepted the salary of a District Court magistrate, but he delivered the services of an educated physician, a broadly trained general pathologist, an artistic technician, a resourceful scientific investigator, and an industrious business executive.

He urged the needs of his department with energy and then when failing, quietly supplied the deficiencies from his own purse. The story of his many discerning interpretations of complicated medico-legal cases has often been told in the daily Press, but the record of innumerable difficult investigations and studies of less notable cases is buried in the annals of his Office, but is fully appreciated by his colleagues. He was most skillful, artistic, and thorough in the performance of autopsies, and his capacity to interpret the signs of disease was developed to a standard fully equal to that of the famous medico-legal experts of the old Vienna school. Such a centre of influence did not fail to affect the standard of medical diagnosis throughout the entire community. New York medicine may have developed in earlier days some notable figures in legal medicine, but never before had the City enjoyed a thoroughly modern medico-legal organization.

In 1928, after ten years of service, the Academy of Medicine recognized his accomplishments by holding a complimentary dinner at which a large company of officials and friends gave warm testimony of their appreciation and esteem. Again, in 1935, the Academy of Medicine honored him with the Gold Medal of the Academy for scientific achievement and outstanding public service. On July 23rd, 1927, he was made a Chevalier de l'Ordre de Couronne by the King of Belgium. In 1933 he was appointed Professor of Forensic Medicine in New York University.

Dr. Norris was a vigorous personality. His large frame, shaggy eyebrows, piercing dark eyes, and short Vandyke beard, made him an impressive figure. His chief power lay in his broad human understanding, and clear mental processes. His mind was entirely free from obliquities and obscurities. He had a strong sense of humor which he used with devastating effect on all forms of sham and pretense, and the popular foibles of the day. Yet those who knew him best realized that he was entirely free from personal ambition, that he over-indulged in self criticism, and cultivated an almost childlike simplicity of thought. A large circle of friends deeply deplore his passing, the medical profession of New York is deprived of a unique figure, and the City administration suffers an irreparable loss. His career forms a notable chapter in the history of legal medicine in America, and his influence will survive.

JAMES EWING.

DEATHS OF FELLOWS OF THE ACADEMY

BUCKMASTER, CLARENCE WHITFIELD, M.D., 80 Ashburton Avenue, Yonkers, New York; graduated in medicine from the College of Physicians and Surgeons in 1894; elected a Fellow of the Academy October 6, 1910; died October 7, 1935. Dr. Buckmaster was a member of the County and State Medical Societies, the American Public Health Association, and a Fellow of the American Medical Association. He gained a wide reputation in the field of disease prevention as Health Commissioner in Yonkers, a position he held for fifteen years.

FRIDENBERG, ALBERT HENRY, M.D., 1 West 85 Street, New York City; graduated from the College of Physicians and Surgeons in 1877; elected a Fellow of the Academy January 25, 1886; died October 3, 1935.

HONAN, WILLIAM FRANCIS, M.D., 1000 Park Avenue, New York City; graduated in medicine from the New York Homeopathic Medical College and Hospital in 1889; elected a Fellow of the Academy February 3, 1921; died October 5, 1935. Dr. Honan was a member of the County and State Medical Societies and of the New York Gastro-Enterological Society, and a Fellow of the American Medical Association and of the American College of Surgeons. He was Consulting Surgeon at Fifth Avenue, Peck Memorial and Richmond Memorial Hospitals and Director of Thoracic Surgery at Metropolitan and Sea View Hospitals. At his death he was Professor of Clinical Surgery at the New York Homeopathic Medical College and head of the Surgical Department of Flower Hospital.

MCCABE, JOHN, M.D., 315 Central Park West, New York City; graduated in medicine from the College of Physicians and Surgeons in 1902; elected a Fellow of the Academy March 7, 1918; died October 7, 1935. Dr. McCabe was a member of the County and State Medical Societies and a Fellow of the American Medical Association. He was Visiting Physician at City Hospital, Executive Physician at Midtown Hospital and Consulting Physican at Polyclinic, Jewish Memorial and Long Beach Hospitals.

MYERS, HOWARD GILLESPIE, B.A., M.A., M.D., 26 Gramercy Park, New York City; graduated in medicine from Bellevue Hospital Medical College in 1887; elected a Fellow of the Academy February 2, 1905; died September 12, 1935. Dr. Myers was a member of the County and State Medical Societies and a Fellow of the American Medical Association.

RAYNOR, MORTIMER WILLIAMS, M.D., Bloomingdale Hospital, White Plains, New York; graduated in medicine from Syracuse University College of Medicine in 1904; elected a Fellow of the Academy November 6, 1919; died October 5, 1935. Dr. Raynor was a member of the County and State Medical Societies, the American Psychiatric Association, the New York Neurological Society, the New York Psychiatric Society, the New York Society for Clinical Psychiatry, and a Fellow of the American Medical Association. At the time of his death Dr. Raynor was Medical Director of Bloomingdale Hospital, Professor of Clinical Psychiatry at Cornell Medical College and Consulting Psychiatrist at New York Hospital.

VERPLANCK, VAN NOYES, M.D., 130 East 71 Street, New York City; graduated in medicine from Johns Hopkins Medical School in 1918; elected a Fellow of the Academy May 6, 1926; died September 11, 1935. Dr. Verplanck was a member of the County and State Medical Societies. He was Assistant Physician at Bellevue Hospital.

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